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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,250	09/28/2004	Shinji Shimosaki	12054-0029	1341
22902	7590	08/09/2007		
CLARK & BRODY 1090 VERMONT AVENUE, NW SUITE 250 WASHINGTON, DC 20005			EXAMINER PATEL, TAYAN B	
			ART UNIT 1753	PAPER NUMBER
			MAIL DATE 08/09/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b></p> <p>10/509,250</p>	<p><b>Applicant(s)</b></p> <p>SHIMOSAKI, SHINJI</p>	
	<p><b>Examiner</b></p> <p>Tayan Patel, Esq.</p>	<p><b>Art Unit</b></p> <p>1753</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>28 Sept 2004</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "exactly same vessel" in line 2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-7, 9 and 12 are rejected under 35 USC 102(b) as being anticipated by Shimozaki et al (Japanese Publication # 2000-345252).

With regard to claims 1, 4 and 5, Shimozaki et al discloses the purification of mixed molten material of metallic calcium, molten calcium chloride and titanium wherein the calcium chloride is brought to its melting point in order to coat titanium (when

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calcium chloride reacts with titanium, salt is adsorbed by the titanium). See abstract; See also English Equivalent, paragraphs 0020 & 0027-0028.

With regard to claims 6 & 12, Shimozaki et al further discloses the same vessel for carrying out the purification and the deoxidation. See figures 1-4; See also para 0019.

With regard to claim 7, Shimozaki et al further discloses producing titanium material from the purification of molten salt via electrolysis. See abstract; See also paras 0014-0018.

With regard to claim 9, Shimozaki et al further discloses the same vessel for carrying out the purification and the deoxidation. See figures 1-4; See also para 0019.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2, 11 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimozaki et al (Japanese Publication # 2000-345252) in view of Oishe et al (Japanese Publication # 04-099829).

With regard to claim 2, Shimozaki et al discloses all of the claimed limitations as discussed with respect to claim 1 above, wherein Shimozaki further discloses the production of low oxygen content titanium (See abstract), yet fails to discuss a vessel made of titanium.

Oishe et al discloses the production of titanium with very low oxygen content wherein the vessel is made of titanium in order to produce deoxidized titanium. See abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was claimed to use the vessel made of titanium in Oishe et al in the method of Shimozaki et al in order to produce deoxidized titanium.

With regard to claim 11, modified Shimozaki et al discloses all of the claimed limitations as discussed with respect to claim 2 above, wherein Shimozaki et al further discloses the purification of mixed molten material of metallic calcium, molten calcium chloride and titanium wherein the calcium chloride is brought to its melting point in order to coat the titanium (when calcium chloride reacts with titanium, the salt is adsorbed by the titanium). See abstract.

With regard to claim 13, modified Shimozaki et al discloses all of the claimed limitations as discussed with respect to claim 2 above, wherein Shimozaki et al further

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discloses producing a titanium material from the purification of molten salt via electrolysis. See abstract.

8. Claims 3, 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimozaki et al (Japanese Publication # 2000-345252) as applied to claim 8 in view of Shindo et al (Japanese Patent # 03291391).

With regard to claims 3 and 8, Shimozaki discloses all of the claimed limitations as discussed with respect to claim 1 and 7 above, respectively wherein Shimozaki et al further discloses the production of high purity titanium (See abstract), yet fails to discuss a foil-like titanium and a LiCl-KCl system mixed salt used under electrolysis as the molten salt.

Shindo et al disclose a method for producing high purity titanium wherein a sponge titanium (foil-like) is immersed into an electrolyte bath of LiCl-KCl used as molten salt for electrolysis in order to produce extremely high purity titanium in superior yield. See abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was claimed to use the foil-like titanium and LiCl-KCl mixed salt in Shindo et al in the method of Shimozaki et al in order to produce extremely high purity titanium in superior yield.

With regard to claim 14, modified Shimozaki et al discloses all of the claimed limitations as discussed with respect to claim 8 above, wherein Shimozaki et al further discloses the same vessel for carrying out the purification and the deoxidation. See figures 1-4; See also para 0019.

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9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimozaki et al (Japanese Publication # 2000-345252) in view of Oishe et al (Japanese Publication # 04-099829) as applied to claim 2, and further in view of Shindo et al (Japanese Patent # 03291391).

With regard to claim 10, modified Shimozaki et al discloses all of the claimed limitations as discussed with respect to claim 2 above, wherein Shimozaki et al further discloses the production of high purity titanium (See abstract), yet fails to discuss a foil-like titanium.

Shindo et al disclose a method for producing high purity titanium wherein a sponge titanium (foil-like) is immersed into an electrolyte bath in order to produce extremely high purity titanium in superior yield. See abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was claimed to use the foil-like titanium in Shindo et al in the method of Shimozaki et al in order to produce extremely high purity titanium in superior yield.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tayan Patel, Esq. whose telephone number is (572) 272-9806. The examiner can normally be reached on monday-thursday, 8 AM-6 PM EST.

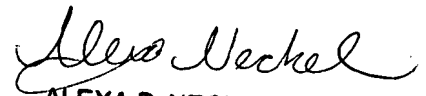
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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TBP



ALEXA D. NECKEL  
SUPERVISORY PATENT EXAMINER